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An Ethnobotany of Understory Species in the Loksado Protected Forest, South Kalimantan

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ABSTRACT

This research was aimed to identify the level of knowledge and utilization of understory species by the Dayak Meratus tribe; and their traditional wisdom to conserve these species. Vegetation analysis of understory species was made using a transect method taken from the edge up into inside the forest along ± 1 km. Continues plot was used with a size of 10 m x 10 m and identification of understory species was done by LIPI Bogor. Semi-structural interviews by filling questionnaires were conducted using a purposive sampling method. The result identified 46 understory species. The knowledge level of the Dayak Meratus tribe based on age groups was similar. Also, the most utilized understory species by local people was for medicine followed by food. Moreover, leaf parts were commonly used to formulate medicine. They conserved these species with planting and maintaining them in their backyard, in the field, and or inside the forest.

Keywords: Ethno-botany, Understory species, the Dayak Meratus tribe

INTRODUCTION

Loksado is an area situated in the region of South Kalimantan, precisely in the upstream of southern district. People who are living in district Loksado are mostly the Dayak Meratus tribe / Dayak Hill tribe and the Banjar tribe. These people have spread in several villages and one of them has in the Tumingki village. Local people who are living in the Tumingki village are truly dependent on the Loksado Protected Forest resources, especially plants. The plant is used as food resources, medicines, the crafts, building materials and others.

Plants used by the Tumingki village vary from trees to understory species. Understory species referred to the types of plants that grow into forest floors such as clump, Herbaceous, shrub, bush, fern, liana and epiphyte. A utilization of understory species by local community can be examined through an ethnobotanical study. It is aimed to know resource utilization woodland understory species by their experience or traditional knowledge from forefathers.

The aimed of this research was to identify the knowledge level and the utilization of understory species by the Dayak Bukit tribe who live in the Tumingki village; and their traditional wisdom which is in line with conserving the understory species.

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MATERIALS AND METHODS

Study area

The study research area was conducted in the Tumingki village located in the Loksado Protected forest. The village is approximately 4 miles from the Loksado district office. Based on Cani (2014), the Tumingki village has populated around 809 persons or 253

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families and mostly included the Dayak Meratus tribe / Dayak Hill tribe and the Banjar tribe. In addition, The Tumingki village has three traditional halls, namely the Ayitih hall, the Tanginau hall and the Haruyan hall. The location of the Tumingki village is presented in Figure 1.

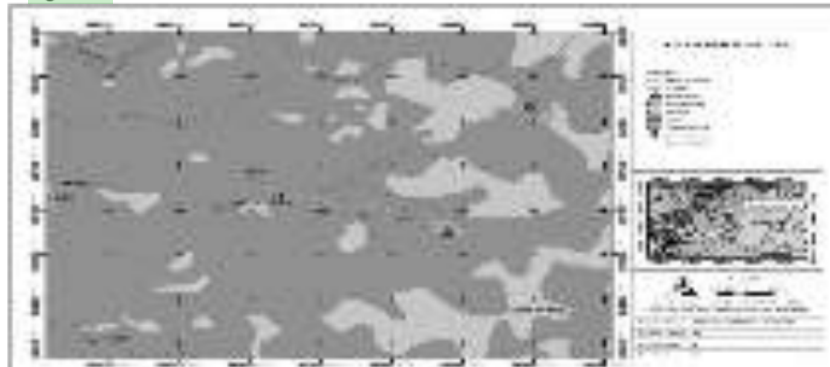


Figure 1. The study area in the the Tumingki village

PROCEDURES

Technique interview

Data collection of an ethnobotanical study was done through semi-structural interviews by filling questionnaires. The distinction of respondents was conducted using a purposive sampling method.

Observation / field observation

Vegetation analysis was used to achieve the research purposes particularly plant varieties to support an ethnobotanical study. The analysis was conducted in the field and line transect was made until ± 1 km from the forest edge. Along the transect, plots were established every 250 m with the size of 10 m x 10 m. After that, understory species found inside the plots was made into Herbariosium and their identification was done by the LIPI Bogor.

Data Analysis

Level of utilization the understory species

The percentage of benefits was calculated using the formula (Suansa, 2011):

$$\text{The percentage of certain benefits} = \frac{\sum \text{for certain benefits}}{\sum \text{entire benefit}} \times 100 \%$$

The percentage of plant parts was measured using the formula:

$$\text{The percentage of a certain part} = \frac{\sum \text{certain parts that used}}{\sum \text{all parts utilized}} \times 100 \%$$

The formula used to calculate the percentage of habitus based on Anggana (2011):

$$\text{The percentage of a particular habitus} = \frac{\sum \text{certain habitus that utilized}}{\sum \text{entire habitus which utilized}} \times 100 \%$$

Level of knowledge by local community

The assessment of local knowledge for the people in the district Tumingki about their utilization of understory species namely food, medicine, cosmetics, handicrafts, building materials / interiors and natural poison could be done based on the quantitative assessment. Knowledge level of respondents was classified according to the age group Suansa (2011):

$$Mg_j = \frac{1}{n} \sum V_i, \text{ whereas}$$

Mg_j = the average knowledge level by members of the group j

n = Total of members in the group j

V_i = Total of knowledge by members of the group i j

j = Class of age

Data percentage of questionnaire results

The questionnaire is a guide used by researchers to conduct interviews with respondents. Results of the questionnaire can be calculated in a way:

$$\text{The percentage of data questionnaire} = \frac{\sum \text{selected answer}}{\sum \text{all respondents}} \times 100 \%$$

RESULTS

A total of 46 species from 27 family by understory species in detected have been identified through a transect along the ± 1 km.

Table 1. Understory species in the Loksado Protected Forest

No	Familia	Species	Local Name	Σ Individu	Habitus
1	Primulaceae	<i>Labisia pumila</i> (Blume) Mez	Anggrek Tanah	2	Herbaceous
2	Poaceae	<i>Imperata cylindrical</i> (L.) Raeusch.	Padang	6	Herbaceous
3	Bromeliaceae	<i>Ananas comosus</i> Merr	Nanas	5	Herbaceous
4	Zingiberaceae	-*	Tapus	11	Herbaceous
5	Poaceae	<i>Cymbopogon</i> sp.	Jalung Kuda	3	Herbaceous
6	Poaceae	<i>Axonopus compressus</i> (Sw.) P.Beauv.	Rumput Galung/Galung rambut	6	Herbaceous
7	Zingiberaceae	-*	Talaran	3	Herbaceous
8	Araceae	<i>Rhaphidophora</i> sp.	Kamaralungan	4	Herbaceous
9	Leguminosae	<i>Mucuna</i> sp.	Akar Carikan Darah	12	Liana
10	Piperaceae	<i>Piper</i> sp.	Cambai/sirih	8	Liana
11	Rubiaceae	<i>Coptosapelta flavescens</i> Korth.	Akar Ketumbar	15	Liana
12	Menispermaceae	<i>Fibraurea tinctoria</i> Lour.	Akar Arau	3	Liana
13	Smilacaceae	<i>Smilax zeylanica</i> L.	Rerangka Hijau	1	Liana
14	-**	-	Akar Gantung	1	Liana
15	Rubiaceae	<i>Coelospermum scandens</i> Blume	Gitaan Burung	6	Liana
16	Leguminosea	<i>Derris</i> sp.	Tuba Kungkung	5	Liana
17	2**	-	Talimpuh	1	Liana
18	Compositae	<i>Mikania cordata</i> (Burm.f.)B.L.Rob.	Akar 95	7	Liana
19	Dioscoreaceae	<i>Dioscorea hispida</i> Dennst.	Gadung Tujuh	13	Liana
20	Convolvulaceae	<i>Ipomoea Trichosperma</i> Blume	Gumbili Layap	5	Liana
21	Thelypteridaceae	<i>Pronephrium nitidum</i> Holtum	Singgagai	270	Fern
22	Gleicheniaceae	<i>Dicranopteris linearis</i> (Burm. f.) Underw	Alang'am	82	Fern
23	Pteridaceae	<i>Pteris ensiformis</i> Burm. f.	Litu	19	Fern
24	Davalliaceae	<i>Davallia corniculata</i> T.Moore	Paku Bakung	8	Fern
25	Nephrolepidaceae	<i>Nephrolepis biserrata</i> (Sw.) Schott	Paku Hutan	37	Fern
26	Blechnaceae	<i>Blechnum orietale</i> L.	Paku Lintang	10	Fern

27	Tectariaceae	<i>Tectaria melanocaula</i> (Blume) Copel.	Paku Durian	4	Fern
28	Blechnaceae	<i>Stenochlaena palustris</i> (burm. f.) Bedd	Paku Habu	5	Fern
29	Arecaceae	-*	Tu'u	6	Shrub
30	Rhamnaceae	<i>Ziziphus rufula</i> miq.	Kuku Halang	9	Shrub
31	Salicaceae	<i>Salacca zalacca</i> (Gaertn.) Voss	Salak	8	Shrub
32	Compositae	<i>Chromolaena odorata</i> (L.) R.M.King & H. Rob.Syn.	Jalama	23	Shrub
33	-***	-	Ampun Nini	4	Shrub
34	-***	-	Rumput Sambung	6	Shrub
35	Arecaceae	<i>Caryota</i> sp.	Risi-risi	5	Shrub
36	Costaceae	<i>Costus</i> sp.	Tawar-tawar	7	Shrub
37	Polygalaceae	<i>Polygala paniculata</i> L.	Kayu Putih	9	Shrub
38	Leguminosae	-*	Kacang Hutan	2	Shrub
39	Acanthaceae	<i>Asystasia nemorum</i> Nees	Sesirihan/besirih	5	Shrub
40	Urticaceae	<i>Laportea interrupta</i> (L.) Chew	Sesahang-sahang	5	Shrub
41	Compositae	<i>Ageratum conyzoides</i> (L.) L.	Pulut-pulut	7	Shrub
42	-***	-	Tanpa Isi	2	Shrub
43	Cyperaceae	<i>Scleria levis</i> Retz.	Bindrang	85	Bush
44	Poaceae	<i>Bambusa</i> sp.	Bambu	1	Bush
45	Arecaceae	<i>Calamus</i> sp.	Rotan/paikat/huyi	3	Bush
46	Poaceae	<i>Gigantochloa</i> sp.	Paring Tali	1	Bush
Total				740	

n.b :

* = Identification until familia level

** = Plant samples only existed in the field

*** = Plant samples were broken

Level of utilization by understory species

Level of utilization by understory species was presented in Figure 2.

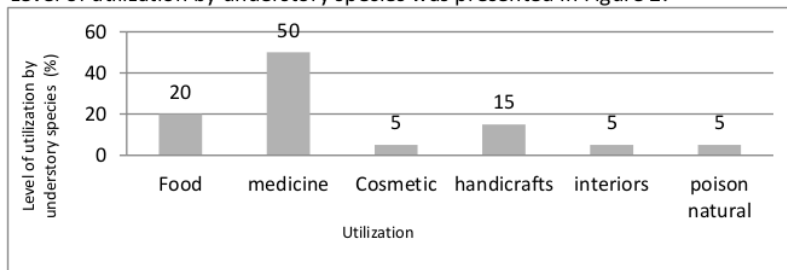


Figure 2. Level utilization of understory species by inhabiting the the Tumingki village

Medicine showed the highest proportion among all other utilization level of understory species followed by food and handicrafts respectively. Moreover, cosmetic, building interiors and natural poison shared an equal percentage of 5 % only.

Plant parts are utilized by community the the Tumingki village

Although root showed a high percentage of plant part utilized by local people, still leaf parts existed the top proportion compared to other plant parts, leaving stem parts, fruits, tuber, water and sap. In addition, flower was utilized the lowest one among all other plant parts.

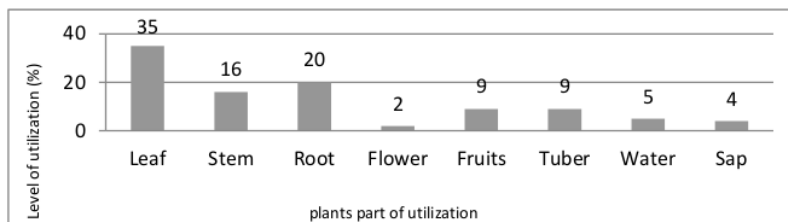


Figure 3. Utilization of understory species by parts of plants

Modes of habitus utilized by local community in the Tumingki village

The utilization rate of each habitus was presented in Figure 4.

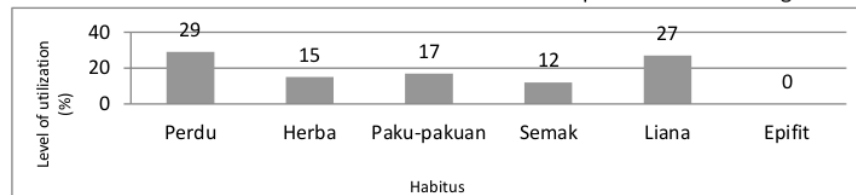


Figure 4. Utilization of understory species based on their habitus

Although Liana showed the high proportion of plant used based on habitus which accounted 27%, still shrubs positioned as the most utilized among all other groups, leaving herbaceous and bushes by which 15% and 12% respectively.

The level of knowledge (Traditional) Communities the the Tumingki village in the District Loksado

Knowledge level of local people based on age groups showed almost the same results which were an elderly people showed 29 % followed by 60-79 years old, 40-59 years old and young cluster (20-39 years old) respectively.

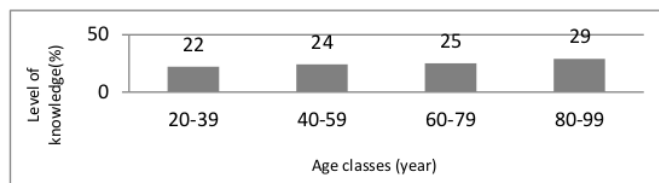


Figure 5. The level of knowledge the Tumingki village by age groups

Level of utilization the understory species

Based on the Figure 2, the Tumingki people has utilized understory species for various purposes. Most of understory species were used for medicines (50%), then by food (20%), crafts (15%) and so on. Understory species categorized as medicine include, *Imperata cylindrical* (L.) Raeusch., *Cymbopogon* sp., *Axonopus compressus* (Sw.) P.Beauv., *Piper* sp., *Coptosapelta flavescens* Kor¹⁰, *Fibraurea tinctoria* Lour., *Smilax zeylanica* L., *Coelospermum scandens* Blume, *Mikania cordata* (Burn⁷) B.L.Rob., *Davallia corniculata* T.Moore, *Blechnum orietale* L., *Ziziphus rufulamiq.*, *Chromolaena odorata* (L.) R.M.King & H. Rob.Syn., *Costus* sp., *Polygala paniculata* L., *Asystasia nemorum* Nees, *Ageratum conyzoides* (L.) L., *Pronephrium nitidum* Holttum and *Scleria levis* Retz. In addition, there were 5 types of understory species which were also used as a medicinal plant but unknown species, namely the *akar gantung*, *talimpuh*, *ampun nini*, *rumpu sambung* and *tanpa isi*. These species were examined to treat illness such as

colds, swollen medicine, medicine for women who have just given birth, cough, and other diseases.

Food resources were *Ananas comosus* Merr, *Ipomoea Trichosperma* Blume, *Tectaria melanocaula* (Blume) Copel., *Stenochlaena palustris* (burm. f.) Bedd, *Salacca zalacca* (Gaertn.) Voss, *Caryota* sp. In addition, there were 3 understory species that had benefits as food ingredients; however, these were not known, namely *tapus*, *talaran* and *tanpa isi*. High the level utilization of plants as a food ingredient is caused by people who often find these plants in the forest when they want to go farming. Utilization of understory species in the Tumingki village as a food ingredient mostly in the form of staple foods, fruits and vegetables.

Cosmetic plants utilized by the villagers Tumingki generally processed by immersing the parts of the plant that is considered to have benefits such as roots in water for one night and after water immersion results can be used. Some understory species utilized as natural cosmetic ingredients by the villagers Tumingki namely *Dicranopteris linearis* (Burm. f.) Underw, *Pteris ensiformis* Burm. f., dan *Rhaphidophora* sp. According to residents in the the Tumingki village, the use of plants as natural cosmetic ingredients can be beneficial to strengthen and hair luxuriant and there is also useful as a reinforcement of the tooth.

The understory species of utilization as craft materials by villagers Tumingki namely, *Dicranopteris linearis* (Burm. f.) Underw, *Calamus* sp., and *Gigantochloa* sp. The utilization of plants as craft materials in the the Tumingki village the form of a hoop bracelet, fish trap, hats, fans , arangan, butah and others.

The utilization of plants as building interiors are more widely used, namely to make cottage (house used for storing crops), make a fence, house walls, floors, pillars and roof. The type of plant that is used by the villagers Tumngki as a building interior that is *Bambusa* sp., *Mucuna* sp. and Tu'u unknown type of species.

Poisonous plant is a plant that has a substance or gas, and if eaten or inhaled by living organisms can cause illness or death. The understory species used by villagers Tumingki as a natural toxin that *Derris* sp. and *Dioscorea hispida* Dennst. The understory species of utilization as natural toxins in the the Tumingki village for example toxic to fish and toxic insecticides.

Plant parts are utilized by community the the Tumingki village

Based on Figure 3, the results of interviews with some of the villagers Tumingki shows the most widely used both for medicines, foods and other benefits that the leaves (35%), followed by roots (20%), then the stem(16%) so on. Utilization of the piece leaves more because it is easy to find and more numerous compared with other parts of plants. Leaves by residents in the village of Tumingki be used for various necessities of life such as food, medicines, cosmetics, and natural toxins. Hayati (2014) states that the use of leaves for the purposes of daily life is one way to forest conservation because do not interfere with the use of these plants compared utilization conditions at the roots, stems, and sap.

That kind of habitus understory species ttilized by community the the Tumingki village A kind of habitus understory species which used by the the Tumingki village based on figure 4, the result of interview exhibiting that kind of shrub the most used by the village community Tumingki because Herbaceousous plant easily found in the forest. Hence

of people in the Tumingki village more often use them in daily life as a food, medicines and cosmetics as *Ziziphus rufula* miq., *Salacca zalacca*, *Chromolaena odorata* (L.), dan *Polygala paniculata* L..

The use of understory species having the value the use of at least based on habitus namely epiphytic. Epiphytic habitus not found on research locations. In addition, according to the interviews with villagers Tumingki, plants of habitus epiphytic difficult to reach by the because of this plant life in in the trees so that it difficult to in an effort to the withdrawal. The majority of the population in the the Tumingki village in generally do not know of the benefits of plants habitus epiphytic.

The level of knowledge (Traditional) Communities the the Tumingki village in the District Loksado

based on figure 5 on data research, the result of research after do the interview directly with some respondents at to four age group shows that in to four fourth age group with the knowledge that is not very different. This show the Tumingki village age has not been affecting the knowledge of the use of understory species.

CONCLUSION

The level knowledge of the use of understory species with the highest score by age group of the inhabitants of the ranging from age 80-99 years with plant which many use as medicines. The resident Tumingki village attempted to understory species conservation of they use by means of planting it back in the forest or in lawns their homes.

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REFERENCES

- Anggana, A. F. 2011. *Kajian Etnobotani Masyarakat di Sekitar Taman Nasional Gunung Merapi (Studi Kasus di Desa Umbulharjo, Sidorejo, Wonodoyo dan Ngablak)*. Skripsi. Departemen Konservasi Sumberdaya Hutan Dan Ekowisata Fakultas Kehutanan Institut Pertanian Bogor.
- Cani (Seketaris Desa). 2014. *Laporan Kependudukan Desa Tumingki*. Loksado Kabupaten Hulu Sungai Selatan.
- Christanti, L. 2012. *Kajian Etnobotani Tumbuhan Andong dari Genus Cordyline di Suku Dayak Meratus Desa Lok Lahung Kecamatan Loksado Kalimantan Selatan*. Skripsi. MIPA Universitas Lambung Mangkurat. Banjarbaru.
- Cutton, C. M. 1996. *Ethnobotany :Principles and Aplications. Scool of Life Science, Roehampton Institute London, UK*.
- Dahir. 2012. *Struktur dan Komposisi Vegetasi Tumbuhan Bawah (Bush, Herbaceous, dan Rumput) dengan Variasi Ketinggian, pada Naungan Tectona Grandis L.F, di Desa Selopamiara, Imogiri, Bantul, Yogyakarta*. Skripsi Fakultas Sains dan Teknologi Uniersitas Islam Negeri Sunan Kalijaga. Yogyakarta.
- Damayanti, E.K. dan Siswoyo. 2011. *Etnobotani Tumbuhan Pangan, Energi, Pewarna, Aromatik dan Racun*. Departemen Konservasi Sumberdaya Hutan dan Ekowisata Fakultas Kehutanan Institut Pertanian Bogor.
- Hayati. 2014. *Etnobotani di Desa Beringin dan Implementasinya dalam Pembuatan Film Dokumenter Manfaat Keanekaragaman Hayati*. Program Studi Pendidikan Biologi Jurusan Fmipa Fakultas Keguruan dan Ilmu Pendidikan Universitas Tanjungpura. Pontianak.
- Magdalena. 2013. *Peran Hukum Adat dalam Pengelolaan dan Perlindungan Hutan di Desa Sesaot, Nusa Tenggara Barat dan Desa Setulang, Kalimantan Timur*. Jurnal Penelitian Sosial dan Ekonomi Kehutanan Vol. 10 No. 2. Pusat Penelitian dan Pengembangan Perubahan Iklim dan Kebijakan Jalan Gunung Batu No. 5. Bogor.
- POKJA AMPL Kabupaten Hulu Sungai Selatan. 2009. *Buku Sanitasi Putih (BPS)*. Kabupaten Hulu Sungai Selatan.
- Pramita, N. H., Serafinah I. dan Luchman H. 2013. *Etnobotani Upacara Kasada Masyarakat Tengger, di Desa Ngadas, Kecamatan Poncokusumo, Kabupaten Malang*. Journal Of Indonesian Tourism And Development Studies Vol.1, No.2. MIPA Universitas Brawijaya. Malang.

- Rahyuni, Eny Y. dan Ramadhanil P. 2013. *Kajian Etnobotani Tumbuhan Ritual Suku Tajio di Desa Kasimbar Kabupaten Parigi Moutong. Jurnal Of Natural Science*. Vol. 2 (2). MIPA Universitas Tadulako Kampus Bumi Tadulako Tondo Palu. Sulawesi Tengah.
- Suansa, N. I. 2011. *Penggunaan Pengetahuan Etnobotani dalam Pengelolaan Hutan Adat Baduy*. Skripsi. Departemen Konservasi Sumberdaya Hutan dan Ekowisata Fakultas Kehutanan Institut Pertanian Bogor.
- Suriawiria, U. 2000. *Obat Mujarab dari Pekarangan Rumah*. Papis Sinar Sinanti. Jakarta.
- Yunanisa. 2012. *Struktur komunitas dan Komposisi Spesies Serta Potensi Pemanfaatan Tumbuhan Bawah di Hutan Kota Muhammad Sabki, Kota Jambi*. Tesis. Universitas Indonesia FMIPA Pasca Sarjana. Depok.

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